



# Analytical Laboratory

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13339 Hagers Ferry Road  
Huntersville, NC 28078-7929  
McGuire Nuclear Complex - MG03A2  
Phone: 980-875-5245 Fax: 980-875-4349

## Order Summary Report

**Order Number:** J12020341

**Customer Name(s):** Bill Kennedy, Melonie Martin, Wayne Chapman, Tom Johnson

**Customer Address:** 3195 Pine Hall Rd  
Mailcode: Belews Steam Station  
Belews Creek, NC 28012

**Lab Contact:** Jason C Perkins **Phone:** 980-875-5348

**Report Authorized By:** \_\_\_\_\_ **Date:** 3/7/2012  
**(Signature)**

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### Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

### Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted.

### Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

*Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)*

### Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2012004143	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	FGD Purge Eff
2012004144	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	BIOREACTOR 1 INF.
2012004145	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	BIOREACTOR 1 INF. BLANK
2012004146	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	BIOREACTOR 2 EFF.
2012004147	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	BIOREACTOR 2 EFF. BLANK
2012004148	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	FILTER BLANK
2012004149	BELEWS	18-Feb-12 12:30 AM	TRAVIS THORNTON	Trip Blank
7 Total Samples				

# Technical Validation Review

## Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).

☒ Yes

☐ No

All Results are less than the laboratory reporting limits.

☐ Yes

☒ No

All laboratory QA/QC requirements are acceptable.

☒ Yes

☐ No

The Vendor Laboratories have been qualified by the Analytical Laboratory

Yes

## Report Sections Included:

☒ Job Summary Report

☒ Sample Identification

☒ Technical Validation of Data Package

☒ Analytical Laboratory Certificate of Analysis

☐ Analytical Laboratory QC Report

☒ Sub-contracted Laboratory Results

☐ Customer Specific Data Sheets, Reports, & Documentation

☐ Customer Database Entries

☒ Chain of Custody

☒ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DataBase Administrator

Date: 3/7/2012

# Certificate of Laboratory Analysis

*This report shall not be reproduced, except in full.*

**Order # J12020341**

Site: FGD Purge Eff

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004143**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>Carbonate, Bicarbonate, and Hydroxide Alkalinity</u></b>								
Carbonate (CO3)	Complete				1	V_PRISM		
Hydroxide (OH)	Complete				1	V_PRISM		
Bicarbonate (HCO3)	Complete				1	V_PRISM		
<b><u>NITRITE + NITRATE (COLORIMETRIC)</u></b>								
Nitrite + Nitrate (Colorimetric)	15	mg-N/L		0.25	25	EPA 353.2	21-Feb-12 14:09	BGN9034
<b><u>INORGANIC IONS BY IC</u></b>								
Bromide	120	mg/L		5	50	EPA 300.0	24-Feb-12 14:58	JAHERMA
Chloride	7700	mg/L		100	1000	EPA 300.0	24-Feb-12 14:58	JAHERMA
Sulfate	1200	mg/L		100	1000	EPA 300.0	24-Feb-12 14:58	JAHERMA
<b><u>MERCURY (COLD VAPOR) IN WATER</u></b>								
Mercury (Hg)	225	ug/L		5	100	EPA 245.1	24-Feb-12 09:10	AGIBBS
<b><u>Mercury Dissolved (cold vapor) in Water (Filtered)</u></b>								
Mercury (Hg)	< 2.5	ug/L		2.5	50	EPA 245.1	02-Mar-12 09:48	AGIBBS
<b><u>DISSOLVED METALS BY ICP</u></b>								
Manganese (Mn)	7.54	mg/L		0.005	1	EPA 200.7	22-Feb-12 14:33	DJSULL1
<b><u>TOTAL RECOVERABLE METALS BY ICP</u></b>								
Boron (B)	253	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Calcium (Ca)	4360	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Iron (Fe)	100.0	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Lithium (Li)	0.125	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Magnesium (Mg)	834	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Manganese (Mn)	8.22	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Potassium (K)	51.2	mg/L		1	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
Sodium (Na)	46.9	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:22	DJSULL1
<b><u>DISSOLVED METALS BY ICP-MS</u></b>								
Selenium (Se)	344	ug/L		10	10	EPA 200.8	22-Feb-12 14:37	MHH7131

# Certificate of Laboratory Analysis

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*This report shall not be reproduced, except in full.***Order # J12020341**

Site: FGD Purge Eff

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004143**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>TOTAL RECOVERABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	154	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Cadmium (Cd)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Chromium (Cr)	191	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Copper (Cu)	89.1	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Nickel (Ni)	164	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Selenium (Se)	4160	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Silver (Ag)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR
Zinc (Zn)	151	ug/L		10	10	EPA 200.8	23-Feb-12 12:09	KRICHAR

**Speciation of an Element**

Vendor Parameter	Complete				1	V_AS&C
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**TOTAL DISSOLVED SOLIDS**

TDS	21000	mg/L		200	1	SM2540C	21-Feb-12 15:13	TJA7067
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**TOTAL SUSPENDED SOLIDS**

TSS	3100	mg/L		250	1	SM2540D
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Site: BIOREACTOR 1 INF.

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004144**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>Carbonate, Bicarbonate, and Hydroxide Alkalinity</u></b>								
Bicarbonate (HCO3)	Complete				1	V_PRISM		
Carbonate (CO3)	Complete				1	V_PRISM		
Hydroxide (OH)	Complete				1	V_PRISM		

**NITRITE + NITRATE (COLORIMETRIC)**

Nitrite + Nitrate (Colorimetric)	12	mg-N/L		0.25	25	EPA 353.2	21-Feb-12 14:12	BGN9034
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**INORGANIC IONS BY IC**

Bromide	110	mg/L		5	50	EPA 300.0	24-Feb-12 15:14	JAHERMA
Chloride	7300	mg/L		100	1000	EPA 300.0	24-Feb-12 15:14	JAHERMA
Sulfate	1400	mg/L		100	1000	EPA 300.0	24-Feb-12 15:14	JAHERMA

**MERCURY 1631**

Vendor Parameter	Complete				1	V_BRAND
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**MERCURY (COLD VAPOR) IN WATER**

Mercury (Hg)	< 2.5	ug/L		2.5	50	EPA 245.1	24-Feb-12 09:12	AGIBBS
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# Certificate of Laboratory Analysis

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*This report shall not be reproduced, except in full.***Order # J12020341**

Site: BIOREACTOR 1 INF.

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004144**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>Mercury Dissolved (cold vapor) in Water (Filtered)</u></b>								
Mercury (Hg)	< 2.5	ug/L		2.5	50	EPA 245.1	02-Mar-12 09:55	AGIBBS
<b><u>DISSOLVED METALS BY ICP</u></b>								
Manganese (Mn)	5.48	mg/L		0.005	1	EPA 200.7	22-Feb-12 14:36	DJSULL1
<b><u>TOTAL RECOVERABLE METALS BY ICP</u></b>								
Boron (B)	240	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Calcium (Ca)	3520	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Iron (Fe)	0.134	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Lithium (Li)	< 0.05	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Magnesium (Mg)	778	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Manganese (Mn)	5.87	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Potassium (K)	22.7	mg/L		1	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
Sodium (Na)	43.5	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:26	DJSULL1
<b><u>DISSOLVED METALS BY ICP-MS</u></b>								
Selenium (Se)	120	ug/L		10	10	EPA 200.8	22-Feb-12 14:41	MHH7131
<b><u>TOTAL RECOVERABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	17.2	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Cadmium (Cd)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Chromium (Cr)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Copper (Cu)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Nickel (Ni)	49.6	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Selenium (Se)	123	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Silver (Ag)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
Zinc (Zn)	< 10	ug/L		10	10	EPA 200.8	23-Feb-12 12:12	KRICHAR
<b><u>Speciation of an Element</u></b>								
Vendor Parameter	Complete				1	V_AS&C		

Site: BIOREACTOR 1 INF. BLANK

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004145**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>MERCURY 1631</u></b>								
Vendor Parameter	Complete				1	V_BRAND		

# Certificate of Laboratory Analysis

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*This report shall not be reproduced, except in full.***Order # J12020341**

Site: BIOREACTOR 2 EFF.

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004146**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>Carbonate, Bicarbonate, and Hydroxide Alkalinity</u></b>								
Bicarbonate (HCO <sub>3</sub> )	Complete				1	V_PRISM		
Carbonate (CO <sub>3</sub> )	Complete				1	V_PRISM		
Hydroxide (OH)	Complete				1	V_PRISM		
<b><u>NITRITE + NITRATE (COLORIMETRIC)</u></b>								
Nitrite + Nitrate (Colorimetric)	0.014	mg-N/L		0.01	1	EPA 353.2	21-Feb-12 14:13	BGN9034
<b><u>INORGANIC IONS BY IC</u></b>								
Bromide	110	mg/L		5	50	EPA 300.0	24-Feb-12 15:30	JAHERMA
Chloride	7500	mg/L		100	1000	EPA 300.0	24-Feb-12 15:30	JAHERMA
Sulfate	1500	mg/L		100	1000	EPA 300.0	24-Feb-12 15:30	JAHERMA
<b><u>MERCURY 1631</u></b>								
Vendor Parameter	Complete				1	V_BRAND		
<b><u>MERCURY (COLD VAPOR) IN WATER</u></b>								
Mercury (Hg)	< 1	ug/L		1	20	EPA 245.1	24-Feb-12 09:15	AGIBBS
<b><u>DISSOLVED METALS BY ICP</u></b>								
Manganese (Mn)	5.58	mg/L		0.005	1	EPA 200.7	22-Feb-12 14:40	DJSULL1
<b><u>TOTAL RECOVERABLE METALS BY ICP</u></b>								
Boron (B)	232	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Calcium (Ca)	3530	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Iron (Fe)	< 0.1	mg/L		0.1	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Lithium (Li)	< 0.05	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Magnesium (Mg)	800	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Manganese (Mn)	5.99	mg/L		0.05	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Potassium (K)	27.8	mg/L		1	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
Sodium (Na)	44.0	mg/L		0.5	10	EPA 200.7	22-Feb-12 12:30	DJSULL1
<b><u>TOTAL RECOVERABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	18.5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Cadmium (Cd)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Chromium (Cr)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Copper (Cu)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Nickel (Ni)	6.76	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Selenium (Se)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Silver (Ag)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
Zinc (Zn)	< 5	ug/L		5	5	EPA 200.8	23-Feb-12 12:15	KRICHAR
<b><u>Speciation of an Element</u></b>								
Vendor Parameter	Complete				1	V_AS&C		

# Certificate of Laboratory Analysis

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*This report shall not be reproduced, except in full.***Order # J12020341**

Site: BIOREACTOR 2 EFF. BLANK

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004147**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>MERCURY 1631</u></b>								
Vendor Parameter	Complete				1	V_BRAND		

Site: FILTER BLANK

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004148**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>Mercury Dissolved (cold vapor) in Water (Filtered)</u></b>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	02-Mar-12 09:57	AGIBBS
<b><u>DISSOLVED METALS BY ICP</u></b>								
Manganese (Mn)	0.019	mg/L		0.005	1	EPA 200.7	22-Feb-12 13:37	DJSULL1
<b><u>DISSOLVED METALS BY ICP-MS</u></b>								
Selenium (Se)	< 1	ug/L		1	1	EPA 200.8	22-Feb-12 13:01	MHH7131

Site: Trip Blank

Collection Date: 18-Feb-12 12:30 AM

**Sample #: 2012004149**

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>TOTAL RECOVERABLE METALS BY ICP</u></b>								
Boron (B)	< 0.05	mg/L		0.05	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Calcium (Ca)	< 0.01	mg/L		0.01	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Lithium (Li)	< 0.005	mg/L		0.005	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Magnesium (Mg)	< 0.005	mg/L		0.005	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Manganese (Mn)	< 0.005	mg/L		0.005	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Potassium (K)	< 0.1	mg/L		0.1	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
Sodium (Na)	< 0.05	mg/L		0.05	1	EPA 200.7	22-Feb-12 11:51	DJSULL1
<b><u>TOTAL RECOVERABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Chromium (Cr)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Copper (Cu)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Nickel (Ni)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Selenium (Se)	1.45	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Silver (Ag)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR
Zinc (Zn)	< 1	ug/L		1	1	EPA 200.8	23-Feb-12 11:35	KRICAR



Certificate of Laboratory Analysis

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Order # J12020341

Site: Trip Blank	Sample #: 2012004149
Collection Date: 18-Feb-12 12:30 AM	Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>Speciation of an Element</u>								
Vendor Parameter	Complete				1	V_AS&C		



Full-Service Analytical &  
Environmental Solutions

NC Certification No. 402  
SC Certification No. 99012  
NC Drinking Water Cert No. 37735  
VA Certification No. 1287

## Case Narrative

02/27/2012

Duke Energy Corporation (04)  
Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews Creek  
Project No.: J12020341  
Lab Submittal Date: 02/21/2012  
Prism Work Order: 2020470

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

**PRISM LABORATORIES, INC.**

VP Laboratory Services

Reviewed By

### Data Qualifiers Key Reference:

HT	Sample received and analyzed outside of the hold time.
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

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Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
2012004143/FGD Purge Eff	2020470-01	Water	02/18/12	02/21/12
2012004144/BioReactor 1 Inf	2020470-02	Water	02/18/12	02/21/12
2012004146/BioReactor 2 Eff	2020470-03	Water	02/18/12	02/21/12

Samples received in good condition at 2.5 degrees C unless otherwise noted.



Duke Energy Corporation (04)  
Attn: Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews  
Creek  
Project No.: J12020341  
Sample Matrix: Water

Client Sample ID: 2012004143/FGD Purge Eff  
Prism Sample ID: 2020470-01  
Prism Work Order: 2020470  
Time Collected: 02/18/12 00:30  
Time Submitted: 02/21/12 15:05

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>General Chemistry Parameters</b>									
pH	7.0 HT	pH Units			1	*SM4500-H B	2/22/12 14:00	JAB	P2B0426
Total Alkalinity	66	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0484
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0485
Bicarbonate Alkalinity	66	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0487



Duke Energy Corporation (04)  
Attn: Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews  
Creek  
Project No.: J12020341  
Sample Matrix: Water

Client Sample ID: 2012004144/BioReactor 1 Inf  
Prism Sample ID: 2020470-02  
Prism Work Order: 2020470  
Time Collected: 02/18/12 00:30  
Time Submitted: 02/21/12 15:05

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>General Chemistry Parameters</b>									
pH	7.0 HT	pH Units			1	*SM4500-H B	2/22/12 14:00	JAB	P2B0426
Total Alkalinity	49	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0484
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0485
Bicarbonate Alkalinity	49	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0487



Duke Energy Corporation (04)  
Attn: Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews  
Creek  
Project No.: J12020341  
Sample Matrix: Water

Client Sample ID: 2012004146/BioReactor 2 Eff  
Prism Sample ID: 2020470-03  
Prism Work Order: 2020470  
Time Collected: 02/18/12 00:30  
Time Submitted: 02/21/12 15:05

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
<b>General Chemistry Parameters</b>									
pH	6.9 HT	pH Units			1	*SM4500-H B	2/22/12 14:00	JAB	P2B0426
Total Alkalinity	120	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0484
Carbonate Alkalinity	BRL	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0485
Bicarbonate Alkalinity	120	mg/L	5.0	0.66	1	*SM2320 B	2/24/12 11:00	JAB	P2B0487



Duke Energy Corporation (04)  
Attn: Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews  
Creek  
Project No: J12020341

Prism Work Order: 2020470  
Time Submitted: 2/21/2012 3:05:00PM

**General Chemistry Parameters - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P2B0426 - NO PREP</b>									
<b>LCS (P2B0426-BS1)</b>				Prepared & Analyzed: 02/22/12					
pH	6.85		pH Units	6.860		100	99-101		
<b>Batch P2B0484 - NO PREP</b>									
<b>Blank (P2B0484-BLK1)</b>				Prepared & Analyzed: 02/24/12					
Total Alkalinity	BRL	5.0	mg/L						
<b>LCS (P2B0484-BS1)</b>				Prepared & Analyzed: 02/24/12					
Total Alkalinity	260	5.0	mg/L	250.0		104	90-110		
<b>LCS Dup (P2B0484-BSD1)</b>				Prepared & Analyzed: 02/24/12					
Total Alkalinity	259	5.0	mg/L	250.0		103	90-110	0.4	200
<b>Batch P2B0485 - NO PREP</b>									
<b>Blank (P2B0485-BLK1)</b>				Prepared & Analyzed: 02/24/12					
Carbonate Alkalinity	BRL	5.0	mg/L						
<b>LCS (P2B0485-BS1)</b>				Prepared & Analyzed: 02/24/12					
Carbonate Alkalinity	260	5.0	mg/L				90-110		
<b>LCS Dup (P2B0485-BSD1)</b>				Prepared & Analyzed: 02/24/12					
Carbonate Alkalinity	259	5.0	mg/L				90-110	0.4	200
<b>Batch P2B0487 - NO PREP</b>									
<b>Blank (P2B0487-BLK1)</b>				Prepared & Analyzed: 02/24/12					
Bicarbonate Alkalinity	BRL	5.0	mg/L						



Duke Energy Corporation (04)  
Attn: Jay Perkins  
13339 Hagers Ferry Road  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews  
Creek  
Project No: J12020341

Prism Work Order: 2020470  
Time Submitted: 2/21/2012 3:05:00PM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch P2B0487 - NO PREP</b>										
<b>LCS (P2B0487-BS1)</b>				Prepared & Analyzed: 02/24/12						
Bicarbonate Alkalinity	260	5.0	mg/L	250.0		104	90-110			
<b>LCS Dup (P2B0487-BSD1)</b>				Prepared & Analyzed: 02/24/12						
Bicarbonate Alkalinity	259	5.0	mg/L	250.0		103	90-110	0.4	200	



# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 17 of 41



## Duke Energy Analytical Laboratory

Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N. C. 28078  
(704) 875-5245  
Fax: (704) 875-4349

LIMS # <u>31220341</u>		Matrix: <b>OTHER</b>	Samples Originating From: <input checked="" type="checkbox"/> NO <input type="checkbox"/> SC
Logged By: <u>Ala</u>	Date & Time: <u>2-20-12</u>	SAMPLE PROGRAM: <input type="checkbox"/> Ground Water <input type="checkbox"/> NPDES <input type="checkbox"/> Drinking Water <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> Waste	
Verid PO# <u>PRISM</u>	PO# <u>144725</u>	Cooler Temp (C): <u>2.4</u>	
Verid PO# <u>AS&amp;C</u>	PO# <u>133241</u>	Preserv.: 1=HCl 2=H <sub>2</sub> SO <sub>4</sub> 3=HNO <sub>3</sub> 4=Ice 5=None	

<sup>19</sup>Page 1 of 2  
DISTRIBUTION  
ORIGINAL to LAB,  
COPY to CLIENT

1) Project Name: <b>HAPS/MACT Testing Belews Creek</b>	2) Phone No:
2) Client: <b>Bill Kennedy, Ron Laws, Allen Stowe, Wayne Chapman, Melonie Martin, Tom Johnson</b>	4) Fax No:
5) Business Unit: <b>20003</b>	6) Process: <b>3500</b>
8) Oper. Unit: <b>BC00</b>	10) Project ID: <b>MACTCAR</b>
9) Res. Type: <b>69400</b>	

Brooks Rand PO#141391		delete all ded areas.		15 Analyses Required		17 Comp.		18 Grab		TDS, TSS		Hg - 245.1		Metals*		Hg, IMS=Se, ICP=Mn (filtered by station)		Se, Speciation, V_ASC		Hg 1631, V_Brand		Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism		Chloride, Sulfate, Bromide - Dionex		Nitrate-nitrite, C_NO3/NO2		MnO <sub>4</sub> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (not preserved)		MnO <sub>4</sub> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (w NaOH)		NaOH		
Date	Time	Signature																																
2/18	0030	Travis Th...									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2/18	0030	Tom Th...										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2/18	0030	Tom Th...										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2/18	0030	Tom Th...														1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2/18	0030	Travis Th...													1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

LAB USE ONLY
11 Lab ID
<u>2012004143</u>
<u>2012004144</u>
<u>45</u>
<u>46</u>
<u>47</u>
<u>48</u>
<u>49</u>

Customer to complete appropriate columns to right

Se Speciation Bottle	ID	13 Sample Description or ID
		FGD Purge Eff
		BioReactor 1 Inf
		BioReactor 1 Inf Hg Blk
		BioReactor 2 Eff
		BioReactor 2 Eff Hg Blk
		Filter Blk
		Metals Trip Blk

Customer to sign & date below - fill out from left to right.

1) Relinquished By: <u>Travis Th...</u>	Date/Time: <u>2/18/12</u>	2) Accepted By: <u>[Signature]</u>	Date/Time: <u>2-20-12 13:35</u>
5) Relinquished By: <u>[Signature]</u>	Date/Time: <u>2-21-12 1300</u>	4) Accepted By: <u>[Signature]</u>	Date/Time: <u>2-21-12 1415</u>
6) Relinquished By: <u>Cindy Knox</u>	Date/Time: <u>2-21-12</u>	3) Accepted By: <u>[Signature]</u>	Date/Time: <u>2-21-12 1505</u>
7) Relinquished By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>	8) Accepted By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>
9) Seal/Label By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>	10) Seal/Label Opened By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>
11) Seal/Label By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>	12) Seal/Label Opened By: <u>[Signature]</u>	Date/Time: <u>2-21-12</u>

Customer, IMPORTANT!  
Please indicate desired turnaround.

<sup>22</sup> Requested Turnaround	
14 Days	_____
*7 Days	_____
*48 Hr	_____
*Other	_____
Add. Cost Will Apply	
<u>2-28-12</u>	

\* Metals=TRM/IMS = As, Cd, Cr, Cu, Ni, Se, Ag, Zn TRM/ICP = B, Ca, Fe, K, Li, Mg, Mn, Na, 1\*\* Mn only

February 29, 2012

Duke Energy  
ATTN: Jay Perkins  
Scientific Support-Laboratory  
13339 Hagers Ferry Road  
Huntersville NC 28078  
jcperkins@duke-energy.com  
labcustomer@duke-energy.com

RE: Project DUK-HV1201

Client Project: J12020341

Dear Mr. Perkins,

On February 22, 2012, Brooks Rand Labs (BRL) received two (2) wastewater samples and two (2) corresponding field blanks. Samples were logged-in for total mercury (Hg) analysis. All samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were blank-corrected as described in the calculations section of the applicable SOP(s) and may be evaluated using adjusted reporting limits to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific detection limits and other details.

No qualification of the data was warranted, aside from concentration qualifiers, and all associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, see the *Report Information* page of the report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Tiffany Stilwater  
Project Manager  
tiffany@brooksrand.com

## Report Information

### Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

### Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

### Common Abbreviations

<b>BLK</b>	method blank	<b>MS</b>	matrix spike
<b>BRL</b>	Brooks Rand Labs	<b>MSD</b>	matrix spike duplicate
<b>BS</b>	laboratory fortified blank	<b>ND</b>	non-detect
<b>CAL</b>	calibration standard	<b>NR</b>	non-reportable
<b>CCV</b>	continuing calibration verification	<b>PS</b>	post preparation spike
<b>COC</b>	chain of custody record	<b>REC</b>	percent recovery
<b>CRM</b>	certified reference material	<b>RPD</b>	relative percent difference
<b>D</b>	dissolved fraction	<b>RSD</b>	relative standard deviation
<b>DUP</b>	duplicate	<b>SCV</b>	secondary calibration verification
<b>ICV</b>	initial calibration verification	<b>SOP</b>	standard operating procedure
<b>MDL</b>	method detection limit	<b>SRM</b>	standard reference material
<b>MRL</b>	method reporting limit	<b>T</b>	total recoverable fraction

### Definition of Data Qualifiers

(Effective 9/23/09)

<b>B</b>	Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
<b>E</b>	An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
<b>H</b>	Holding time and/or preservation requirements not met. Result is estimated.
<b>J</b>	Estimated value. A full explanation is presented in the narrative.
<b>J-M</b>	Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
<b>J-N</b>	Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
<b>M</b>	Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
<b>N</b>	Spike recovery was not within acceptance criteria. Result is estimated.
<b>R</b>	Rejected, unusable value. A full explanation is presented in the narrative.
<b>U</b>	Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
<b>X</b>	Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand, Ltd., those found in the EPA SOW\_ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses; USEPA; July 2002. These supersede all previous qualifiers ever employed by BRL.

## Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
BioReactor 1 Inf	1208013-01	Water	Sample	02/18/2012	02/22/2012
BioReactor 1 Inf Hg Blk	1208013-02	Water	Sample	02/18/2012	02/22/2012
BioReactor 2 Eff	1208013-03	Water	Sample	02/18/2012	02/22/2012
BioReactor 2 Eff Hg Blk	1208013-04	Water	Sample	02/18/2012	02/22/2012

## Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	02/25/2012	02/27/2012	B120297	1200129

## Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
<b>BioReactor 1 Inf</b>										
1208013-01	Hg	Water	T	230		15.2	40.4	ng/L	B120297	1200129
<b>BioReactor 1 Inf Hg Blk</b>										
1208013-02	Hg	Water	T	0.15	U	0.15	0.40	ng/L	B120297	1200129
<b>BioReactor 2 Eff</b>										
1208013-03	Hg	Water	T	15.1		0.58	1.54	ng/L	B120297	1200129
<b>BioReactor 2 Eff Hg Blk</b>										
1208013-04	Hg	Water	T	0.15	U	0.15	0.40	ng/L	B120297	1200129

## Accuracy & Precision Summary

Batch: B120297  
Lab Matrix: Water  
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B120297-SRM1	Certified Reference Material (1209009, NIST 1641d 1000x dilution)						
	Hg		15.68	14.73	ng/L	94% 85-115	
B120297-MS1	Matrix Spike (1208004-01)						
	Hg	758.5	3535	4800	ng/L	114% 71-125	
B120297-MSD1	Matrix Spike Duplicate (1208004-01)						
	Hg	758.5	3535	4565	ng/L	108% 71-125	5% 24
B120297-MS2	Matrix Spike (1208004-03)						
	Hg	29.10	139.0	168.1	ng/L	100% 71-125	
B120297-MSD2	Matrix Spike Duplicate (1208004-03)						
	Hg	29.10	140.2	177.0	ng/L	105% 71-125	5% 24

## Method Blanks & Reporting Limits

Batch: B120297  
Matrix: Water  
Method: EPA 1631  
Analyte: Hg

Sample	Result	Units
B120297-BLK1	0.11	ng/L
B120297-BLK2	0.04	ng/L
B120297-BLK3	0.04	ng/L
B120297-BLK4	0.04	ng/L

Average: 0.06  
Limit: 0.50

Standard Deviation: 0.04  
Limit: 0.10

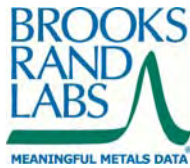
MDL: 0.15  
MRL: 0.40

## Instrument Calibration

Sequence: 1200129  
Instrument: THG-10  
Date: 02/27/2012  
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS  
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200129-IBL1		4.20	pg of Hg		
1200129-IBL2		6.75	pg of Hg		
1200129-IBL3		4.72	pg of Hg		
1200129-IBL4		5.95	pg of Hg		
1200129-CAL1	25.00	24.83	pg of Hg	99%	
1200129-CAL2	100.0	90.79	pg of Hg	91%	
1200129-CAL3	500.0	481.7	pg of Hg	96%	
1200129-CAL4	2500	2727	pg of Hg	109%	
1200129-CAL5	10000	10670	pg of Hg	107%	
1200129-ICV1	1568	1473	pg of Hg	94%	85-115
1200129-CCB1		4.56	pg of Hg		
1200129-CCV1	500.0	512.9	pg of Hg	103%	77-123
1200129-CCV2	500.0	512.7	pg of Hg	103%	77-123
1200129-CCV3	500.0	444.8	pg of Hg	89%	77-123



## Sample Containers

Lab ID: 1208013-01			Report Matrix: Water			Collected: 02/18/2012	
Sample: BioReactor 1 Inf			Sample Type: Sample			Received: 02/22/2012	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	71470160	none	n/a		Cooler
			10				
Lab ID: 1208013-02			Report Matrix: Water			Collected: 02/18/2012	
Sample: BioReactor 1 Inf Hg Blk			Sample Type: Sample			Received: 02/22/2012	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	71470160	none	n/a		Cooler
			10				
Lab ID: 1208013-03			Report Matrix: Water			Collected: 02/18/2012	
Sample: BioReactor 2 Eff			Sample Type: Sample			Received: 02/22/2012	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	71470160	none	n/a		Cooler
			10				
Lab ID: 1208013-04			Report Matrix: Water			Collected: 02/18/2012	
Sample: BioReactor 2 Eff Hg Blk			Sample Type: Sample			Received: 02/22/2012	
Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71490157	none	n/a		Cooler
			0				

## Shipping Containers

### Cooler

Received: February 22, 2012 9:00  
Tracking No: 472679668573 via FedEx  
Coolant Type: Ice  
Temperature: 0.4 °C

Description: Cooler  
Damaged in transit? No  
Returned to client? No

Custody seals present? No  
Custody seals intact? No  
COC present? Yes



# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

1208013



## Duke Energy Analytical Laboratory

Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N. C. 28078  
(704) 875-5245  
Fax: (704) 875-4349

Page 25 of 41  
Page 1 of 2  
DISTRIBUTION  
ORIGINAL to LAB,  
COPY to CLIENT

**Analytical Laboratory Use Only**

LIMS # 12020341 Matrix: **OTHER** Samples Originating From NC SC

Logged By Am Date & Time 2-20-12 (4/11)

Vend: PRISM PO# 144725 Cooler Temp (C) 24

Vend: AS&C PO# 133241 Preserv.: 1=HCL 2=H<sub>2</sub>SO<sub>4</sub> 3=HNO<sub>3</sub> 4=Ice 5=None

16 Analyses Required

17 Comp. 18 Grab TDS, TSS Hg - 245.1 Metals\* Hg, IMS=Se, ICP=Mn (filtered by station) Se, Speciation, V\_ASC Hg 1631, V\_Brand Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V\_Prism Chloride, Sulfate, Bromide - Dionex Nitrate-nitrite, C, NO3/NO2 MnO<sub>4</sub><sup>-</sup> and S<sub>2</sub>O<sub>8</sub><sup>2-</sup> (not preserved) MnO<sub>4</sub><sup>-</sup> and S<sub>2</sub>O<sub>8</sub><sup>2-</sup> (w NaOH) NaOH

4 3 3 3 4 None 4 4 2,4 4 4

Customer must Complete

1) Project Name **HAPS/MACT Testing Belews Creek** 2) Phone No:

2) Client: **Bill Kennedy, Ron Laws, Allen Stowe, Wayne Chapman, Melonie Martin, Tom Johnson** 4) Fax No:

5) Business Unit: **20003** 6) Process: **3500** Mail Code:

8) Oper. Unit: **BC00** 9) Res. Type: **69400** 10) Project ID: **MACTCAR**

**LAB USE ONLY**

11 Lab ID

2012004143  
2012004144  
45  
46  
47  
48  
49

Customer to complete appropriate columns to right

Se Speciation Bottle ID	13 Sample Description or ID	PO#141391			17 Comp.	18 Grab	TDS, TSS	Hg - 245.1	Metals*	Hg, IMS=Se (filtered by station)	Se, Speciation	Hg 1631, V	Carbonate alkalinity, total V Prism	Chloride, Sulfate, Bromide - Dion	Nitrate-nitrite	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup>	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup>	
		Date	Time	Signature														
	FGD Purge Eff	2/18	0030	Travis Th...			1	1	1	1	1		1	1	1		2	2
	BioReactor 1 Inf	2/18	0030	Tom Th...				1	1	1	1	1	1	1	1			to AS&C
	BioReactor 1 Inf Hg Blk	2/18	0030	Tom Th...								1						
	BioReactor 2 Eff	2/18	0030	Tom Th...				1	1	1**	1	1	1	1	1			
	BioReactor 2 Eff Hg Blk	2/18	0030	Tom Th...								1						
	Filter Blk	2/18	0030	Travis Th...						1								
	Metals Trip Blk								1		1							

Customer to sign & date below - fill out from left to right.

1) Relinquished By Travis Th... Date/Time 2/18/12

2) Accepted By [Signature] Date/Time 2-20-12 13:35

3) Relinquished By [Signature] Date/Time 2-21-12 1300

4) Accepted By [Signature] Date/Time 2/22/12 0900

5) Relinquished By [Signature] Date/Time [Blank]

6) Accepted By [Signature] Date/Time [Blank]

7) Relinquished By [Signature] Date/Time [Blank]

8) Accepted By [Signature] Date/Time [Blank]

9) Seal/Lock By [Signature] Date/Time 2-21-12

10) Seal/Lock Opened By [Blank] Date/Time [Blank]

11) Seal/Lock By [Signature] Date/Time [Blank]

12) Seal/Lock Opened By [Blank] Date/Time [Blank]

Comments

\* Metals=TRM/IMS = As, Cd, Cr, Cu, Ni, Se, Ag, Zn TRM/ICP = B, Ca, FE, K, Li, Mg, Mn, Na, 1\*\* Mn only

**Customer, IMPORTANT!**  
Please indicate desired turnaround.

22 Requested Turnaround

14 Days \_\_\_\_\_

\*7 Days \_\_\_\_\_

-48 Hr \_\_\_\_\_

\*Other \_\_\_\_\_

Add. Cost Will Apply

2-28-12



**APPLIED SPECIATION  
AND CONSULTING, LLC**

18804 Northcreek Parkway Bothell, WA, 98011  
Tel: (425) 483-3300 Fax: (425) 483-9818  
[www.appliedspeciation.com](http://www.appliedspeciation.com)

March 6, 2012

Jay Perkins  
Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd.  
Huntersville, NC 28078  
(704) 875-5245

Project: HAPS/MACT Testing Belews Creek (LIMS # J12020341)

Dear Mr. Perkins,

Attached is the report associated with one (1) aqueous sample submitted for permanganate and persulfate analyses on February 21, 2012. The samples were received in a sealed cooler at - 0.3°C on February 22, 2012. Permanganate and persulfate analyses were performed via spectrophotometry. Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Gerads", written over a light blue horizontal line.

Russell Gerads  
Vice President  
Applied Speciation and Consulting, LLC

## Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins  
Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd.  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews Creek (LIMS # J12020341)

March 6, 2012

## 1. Sample Reception

One (1) aqueous sample in two 125mL HDPE bottles and two 125mL borosilicate glass bottles (provided by Applied Speciation and Consulting) was submitted for permanganate and persulfate analyses on February 21, 2012. The sample was received on February 22, 2012 in a sealed container at -0.3°C.

The sample was received in a laminar flow clean hood, void of trace metals contamination and ultra-violet radiation, and was designated a discrete sample identifier. All sample containers were placed in a secure refrigerator maintained at a temperature of 4°C until analysis could be performed.

## 2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

*S<sub>2</sub>O<sub>8</sub><sup>-2</sup> and MnO<sub>4</sub><sup>-</sup> Analysis by Spectrophotometry* Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm). Permanganate standards of known concentrations were filtered using the identical filtration apparatus to confirm that filtration does not induce loss of the target analyte.

Filtration is a requirement for samples containing suspended solids due to the light scattering properties of particulates.

### 3. Sample Analysis

All sample analysis is preceded by a minimum of a four-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of each analytical day. All calibration curves, associated with each species of interest, are standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

*MnO<sub>4</sub><sup>-</sup> Analysis by Spectrophotometry* Each sample for permanganate analysis was analyzed by spectrophotometry on February 29, 2012. An aliquot of each sample was transferred to a cuvette with a 1cm light path. The permanganate complex was quantified by measuring the light absorbance at a wavelength of 545nm.

*S<sub>2</sub>O<sub>8</sub><sup>2-</sup> Analysis by Spectrophotometry* Each sample for persulfate analysis was analyzed by spectrophotometry on March 1, 2012. An aliquot of each sample was transferred to a 15mL polyethylene centrifuge tube. A starch iodide solution was added to each sample which induces conversion of iodide to I<sub>2(aq)</sub>. The I<sub>2</sub> complex then reacts with starch to form a blue complex which is measured at a wavelength of 525nm.

### 4. Analytical Issues

The permanganate and persulfate recoveries for the matrix spike and matrix spike duplicate were below the control limit of 75%. The target analytes are efficient oxidizing agents which are amenable to reaction with most compounds. The low recoveries confirm that the sample matrix does not support the existence of strong oxidizing agents such as permanganate or persulfate. Approximately 2 minutes passed between the time of amending the sample matrix with the spikes and measurements which suggests that the low sample concentrations are not attributed to the variable of sample holding times.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,



Russell Gerads  
Vice President  
Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy  
Project Name: HAPS/MACT Testing Belews Creek  
Contact: Jay Perkins  
LIMS #J12020341

Date: March 6, 2012  
Report Generated by: Russell Gerads  
Applied Speciation and Consulting, LLC

**Sample Results**

Sample ID	MnO <sub>4</sub> <sup>-</sup>	S <sub>2</sub> O <sub>8</sub> <sup>-2</sup>
FGD Purge Eff	ND (<0.50)	ND (<100)

All results reflect the applied dilution and are reported in mg/L

ND = Not detected at the applied dilution

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**Quality Control Summary - Preparation Blank Summary**

Analyte (mg/L)	PBW1	eMDL
MnO <sub>4</sub> <sup>-</sup>	0.00	0.50
S <sub>2</sub> O <sub>8</sub> <sup>-2</sup>	12	100

eMDL = Estimated Method Detection Limit

**Quality Control Summary - Certified Reference Materials**

Analyte (mg/L)	CRM	True Value	Result	Recovery
MnO <sub>4</sub> <sup>-</sup>	LCS	0.500	0.581	116.3
S <sub>2</sub> O <sub>8</sub> <sup>-2</sup>	LCS	100	123	123.4

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**Quality Control Summary - Matrix Duplicates**

Analyte (mg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
MnO <sub>4</sub> <sup>-</sup>	Batch QC	ND (<0.50)	ND (<0.50)	NC	NC
S <sub>2</sub> O <sub>8</sub> <sup>-2</sup>	Batch QC	129	116	122.2	10.5

ND = Not detected at the applied dilution

NC = Value was not calculated due to one or more concentrations below the eMDL

**Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate**

Analyte (mg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
MnO <sub>4</sub> <sup>-</sup>	Batch QC	0.500	0.052	10.5*	0.500	0.052	10.5*	0.0
S <sub>2</sub> O <sub>8</sub> <sup>-2</sup>	Batch QC	500	167	9.0*	500	137	3.0*	19.7

\*Low recovery is attributed to matrix induced species conversion



# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 2

DISTRIBUTION  
ORIGINAL TO LAB,  
COPY TO CLIENT

Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N.C. 28078  
(704) 876-5246  
Fax: (704) 876-4349

Customer must complete Page 32 of 41

1) Project Name	HAPS/MACT Testing Bellevue Creek	2) Client	Bill Kennedy, Ron Laws, Allen Stowe, Wayne Chapman, Melonie Martin, Tom Johnson
3) Business Unit	20003	4) Project No.	
5) Operator Unit	BC00	6) Process	3500
7) Spec. Type	69400	8) Mail Code	
9) Project ID	MACTCAR		

LAB USE ONLY	10) Lab ID
	20120041143
	20120041144
	20120041145
	20120041146
	20120041147
	20120041148
	20120041149

Customer to complete appropriate columns to right

Se. Speciation Bottle ID	13 Sample Description or ID	Date	Time	Signature	17 Comp.	18 Grab	TDS, TSS	Hg - 245.1	Metals*	Hg, IMS=Se, ICP=Mn (filtered by station)	Se, Speciation, V_ASC	Hg 1631, V_Brand	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism	Chloride, Sulfate, Bromide - Dionex	Nitrate-nitrite, C_NO3/NO2	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (not preserved)	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (w NaOH)
	FGD Purge Eff	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	2	2
	BioReactor 1 Inf	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	1	1
	BioReactor 1 Inf Hg BIK	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	1	1
	BioReactor 2 Eff	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	1	1
	BioReactor 2 Eff Hg BIK	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	1	1
	Filter BIK	2/18	0030	Travis T. B.			1	1	1	1	1	1	1	1	1	1	1
	Metals Trip BIK																

Customer to sign & date below - fill out from left to right.

1) Receiving By	2) Date	2/18/12	3) Accepted By	4) Date	2/20/12	5) Specified By	6) Date	2/20/12	7) Specified By	8) Date	2/20/12	9) Specified By	10) Date	2/20/12	11) Specified By	12) Date	2/20/12	13) Specified By	14) Date	2/20/12	15) Specified By	16) Date	2/20/12	17) Specified By	18) Date	2/20/12	19) Specified By	20) Date	2/20/12	21) Specified By	22) Date	2/20/12	23) Specified By	24) Date	2/20/12	25) Specified By	26) Date	2/20/12	27) Specified By	28) Date	2/20/12	29) Specified By	30) Date	2/20/12	31) Specified By	32) Date	2/20/12	33) Specified By	34) Date	2/20/12	35) Specified By	36) Date	2/20/12	37) Specified By	38) Date	2/20/12	39) Specified By	40) Date	2/20/12	41) Specified By	42) Date	2/20/12	43) Specified By	44) Date	2/20/12	45) Specified By	46) Date	2/20/12	47) Specified By	48) Date	2/20/12	49) Specified By	50) Date	2/20/12	51) Specified By	52) Date	2/20/12	53) Specified By	54) Date	2/20/12	55) Specified By	56) Date	2/20/12	57) Specified By	58) Date	2/20/12	59) Specified By	60) 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**APPLIED SPECIATION  
AND CONSULTING, LLC**

18804 Northcreek Parkway Bothell, WA, 98011  
Tel: (425) 483-3300 Fax: (425) 483-9818  
[www.appliedspeciation.com](http://www.appliedspeciation.com)

February 28, 2012

Jay Perkins  
Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd.  
Huntersville, NC 28078  
(704) 875-5245

Project: HAPS/MACT Testing Belews Creek (LIMS # J12020341)

Dear Mr. Perkins,

Attached is the report associated with four (4) aqueous samples submitted for selenium speciation analysis on February 21, 2012. The samples were received in a sealed cooler at -0.3°C on February 22, 2012. Selenium speciation analysis was performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Gerads", written over a light blue horizontal line.

Russell Gerads  
Vice President  
Applied Speciation and Consulting, LLC

Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins  
Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd.  
Huntersville, NC 28078

Project: HAPS/MACT Testing Belews Creek (LIMS # J12020341)

February 28, 2012

## 1. Sample Reception

Four (4) aqueous samples in 125mL HDPE bottles (provided by Applied Speciation and Consulting) were submitted for selenium speciation analysis on February 21, 2012. The samples were received on February 22, 2012 in a sealed container at -0.3°C.

The samples were received in a laminar flow clean hood, void of trace metals contamination and ultra-violet radiation, and was designated a discrete sample identifier. An aliquot of each sample was filtered (0.45µm) and each filtrate was stored in a secure, monitored cryofreezer (maintained at a temperature of -80°C) until selenium speciation analysis could be performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS).

## 2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

Selenium Speciation Analysis by IC-ICP-CRC-MS Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm) and injected directly into a sealed autosampler vial. No further sample preparation was performed as any chemical alteration of a sample may shift the equilibrium of the system, resulting in changes in speciation ratios.

## 3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of each analytical day. All calibration curves, associated with each species of interest, are

standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

*Selenium Speciation Analysis by IC-ICP-CRC-MS* Each sample for selenium speciation analysis was analyzed by ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS) on February 23, 2012. An aliquot of each sample is injected onto an anion exchange column and mobilized by a basic ( $\text{pH} > 7$ ) gradient. The eluting selenium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (CRC) containing hydrogen gas which preferentially reacts with interfering ions of the same target mass to charge ratios ( $m/z$ ). A solid-state detector detects ions transmitted through the mass analyzer and the resulting current is processed by a data handling system.

Retention times for each eluting species are compared to known standards for species identification.

#### 4. Analytical Issues

The overall analyses went well and no significant analytical issues were encountered. All quality control parameters associated with this sample were within acceptance limits.

The estimated method detection limits (eMDLs) for selenite, selenate, and selenocyanate are generated from replicate analyses of the lowest standard in the calibration curve. Not all selenium species are present in preparation blanks; therefore, eMDL calculations based on preparation blanks are artificially biased low.

The eMDL for methylseleninic acid and selenomethionine is calculated from the average eMDL of selenite, selenate, and selenocyanate. The calibration does not contain methylseleninic acid or selenomethionine due to impurities in these standards which would bias the results for other selenium species.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Russell Gerads', with a stylized, flowing script.

Russell Gerads  
Vice President  
Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy  
 Project Name: HAPS/MACT Testing Belews Creek  
 Contact: Jay Perkins  
 LIMS #J12020341

Date: February 28, 2012  
 Report Generated by: Russell Gerads  
 Applied Speciation and Consulting, LLC

**Sample Results**

Sample ID	Se(IV)	Se(VI)	SeCN	MeSe(IV)	SeMe	Unknown Se Species (n)
FGd Purge Eff	310	75.1	ND (<1.6)	ND (<9.4)	ND (<9.4)	0 (0)
BioReactor 1 Inf	40.2	65.5	ND (<0.39)	5.7	ND (<2.4)	0 (0)
BioReactor 2 Eff	ND (<2.0)	ND (<4.7)	ND (<0.39)	ND (<2.4)	ND (<2.4)	0 (0)
Metals Trip Blk	ND (<0.079)	ND (<0.19)	ND (<0.016)	ND (<0.094)	ND (<0.094)	0 (0)

All results reflect the applied dilution and are reported in µg/L

ND = Not detected at the applied dilution

SeCN = Selenocyanate

MeSe(IV) = Methylseleninic acid

SeMe = Selenomethionine

Unknown Se Species = Total concentration of all unknown Se species observed by IC-ICP-MS

n = number of unknown Se species observed

Selenium Speciation Results for Duke Energy  
 Project Name: HAPS/MACT Testing Belews Creek  
 Contact: Jay Perkins  
 LIMS #J12020341

Date: February 28, 2012  
 Report Generated by: Russell Gerads  
 Applied Speciation and Consulting, LLC

**Quality Control Summary - Preparation Blank Summary**

Analyte (µg/L)	PBW1	PBW2	PBW3	PBW4	Mean	StdDev	eMDL*	eMDL 10x	eMDL 250x	eMDL 1000x
Se(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.079	2.0	7.9
Se(VI)	0.019	0.000	0.000	0.000	0.005	0.009	0.019	0.188	4.7	19
SeCN	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.016	0.39	1.6
MeSe(IV)	0.000	0.000	0.095	0.000	0.024	0.048	0.009	0.094	2.4	9.4
SeMe	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.094	2.4	9.4

eMDL = Estimated Method Detection Limit

\*Please see narrative regarding eMDL calculations

**Quality Control Summary - Certified Reference Materials**

Analyte (µg/L)	CRM	True Value	Result	Recovery
Se(IV)	LCS	9.57	9.38	98.0
Se(VI)	LCS	9.48	9.09	95.9
SeCN	LCS	8.92	8.54	95.7
MeSe(IV)	LCS	6.47	5.79	89.4
SeMe	LCS	9.32	8.48	91.0

Selenium Speciation Results for Duke Energy  
 Project Name: HAPS/MACT Testing Belews Creek  
 Contact: Jay Perkins  
 LIMS #J12020341

Date: February 28, 2012  
 Report Generated by: Russell Gerads  
 Applied Speciation and Consulting, LLC

**Quality Control Summary - Matrix Duplicates**

Analyte (µg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
Se(IV)	Batch QC	ND (<2.0)	ND (<2.0)	NC	NC
Se(VI)	Batch QC	ND (<4.7)	ND (<4.7)	NC	NC
SeCN	Batch QC	ND (<0.39)	ND (<0.39)	NC	NC
MeSe(IV)	Batch QC	ND (<2.4)	ND (<2.4)	NC	NC
SeMe	Batch QC	ND (<2.4)	ND (<2.4)	NC	NC

ND = Not detected at the applied dilution

NC = Value was not calculated due to one or more concentrations below the eMDL

**Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate**

Analyte (µg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
Se(IV)	Batch QC	1390	1592	114.6	1390	1594	114.7	0.1
Se(VI)	Batch QC	1261	1279	101.4	1261	1284	101.8	0.4
SeCN	Batch QC	1144	812.1	71.0*	1144	821.9	71.9*	1.2

\*Low recovery is attributed to matrix induced species conversion



# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 2

Duke Energy Analytical Laboratory  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N.C. 28078  
(704) 876-5246  
Fax: (704) 876-4349

Customer must complete Page 40 of 41

1) Project Name	HAPS/MACT Testing Bellevue Creek		2) Client	Bill Kennedy, Ron Laws, Allen Stowe, Wayne Chapman, Melonie Martin, Tom Johnson
3) Business Unit	20003	4) Process	3500	5) Mail Code
6) Operator Unit	BC00	7) Rec. Type	69400	8) Project ID
				MACTCAR

LAB USE ONLY
1) Lab ID
2012004143
2012004144
2012004145
2012004146
2012004147
2012004148
2012004149

Customer to complete appropriate columns to right

Se. Speciation Bottle ID	13 Sample Description or ID	Date	Time	Signature	17 Comp.	18 Grab	TDS, TSS	Hg - 245.1	Metals*	Hg, IMS=Se, ICP=Mn (filtered by station)	Se, Speciation, V_ASC	Hg 1631, V_Brand	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V Prism	Chloride, Sulfate, Bromide - Dionex	Nitrate-nitrite, C_NO3/NO2	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (not preserved)	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (w NaOH)
	FGD Purge Eff	2/18	0030	Travis			1	1	1	1	1	1	1	1	1	2	2
	BioReactor 1 Inf	2/18	0030	Travis			1	1	1	1	1	1	1	1	1		
	BioReactor 1 Inf Hg BIK	2/18	0030	Travis			1	1	1	1	1	1	1	1	1		
	BioReactor 2 Eff	2/18	0030	Travis			1	1	1	1	1	1	1	1	1		
	BioReactor 2 Eff Hg BIK	2/18	0030	Travis			1	1	1	1	1	1	1	1	1		
	Filter BIK	2/18	0030	Travis			1	1	1	1	1	1	1	1	1		
	Metals Trip BIK																

Customer to sign & date below - fill out from left to right.

1) Receiving By	2) Date	2/18/12	3) Accepted By	4) Date	2/20/12	5) Requested Turnaround	14 Days
6) Receiving By	7) Date	2/21/12	8) Accepted By	9) Date	2/22/12	7 Days	
10) Receiving By	11) Date	2/22/12	12) Accepted By	13) Date	2/23/12	48 Hr	
14) Receiving By	15) Date	2/24/12	16) Accepted By	17) Date	2/25/12	Add Cost Will Apply	
18) Receiving By	19) Date	2/26/12	20) Accepted By	21) Date	2/27/12	2 of 4	

Customer, IMPORTANT!  
Please indicate desired turnaround.

DISTRIBUTION  
ORIGINAL TO LAB,  
COPY TO CLIENT

20





**Duke Energy Analytical Laboratory**

Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N. C. 28078  
(704) 875-5245  
Fax: (704) 875-4349

Customer must complete

1) Project Name <b>HAPS/MACT Testing Belews Creek</b>		2) Phone No:
2) Client: <b>Bill Kennedy, Ron Laws, Allen Stowe, Wayne Chapman, Melonie Martin, Tom Johnson</b>		4) Fax No:
5) Business Unit: <b>20003</b>	6) Process: <b>3500</b>	Mail Code:
8) Oper. Unit: <b>BC00</b>	9) Res. Type: <b>69400</b>	10) Project ID: <b>MACTCAR</b>

LIMS # <b>2020341</b>		Matrix: <b>OTHER</b>	Samples Originating From NO <input checked="" type="checkbox"/> SC <input type="checkbox"/>
Logged By <b>Am</b>	Date & Time <b>2-20-12 (4:11)</b>	Cooler Temp (C) <b>2.4</b>	
Vend <b>PRISM</b>	PO# <b>PO#144725</b>	SAMPLE PROGRAM Ground Water NPDES <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/>	
Vend <b>AS&amp;C</b>	PO# <b>PO#133241</b>	Drinking Water <input type="checkbox"/> Waste <input type="checkbox"/>	

19 Page 1 of 2  
**DISTRIBUTION**  
ORIGINAL to LAB,  
COPY to CLIENT

**X**

LAB USE ONLY	
11) Lab ID	
2012004143	
2012004144	
45	
46	
47	
48	
49	

Customer to complete appropriate columns to right

Se Speciation Bottle ID	13 Sample Description or ID	Date	Time	Signature	17 Comp.	18 Grab	TDS, TSS	Hg - 245.1	Metals*	Hg, IMS=Se, ICP=Mn (filtered by station)	Se, Speciation, V_ASC	Hg 1631, V_BRAND	Carbonate alkalinity, bicarbonate alkalinity, alkalinity, total (4.5), pH - V_Prism	Chloride, Sulfate, Bromide - Dionex	Nitrate-nitrite, C_NO3/NO2	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (not preserved)	MnO <sub>4</sub> <sup>-</sup> and S <sub>2</sub> O <sub>8</sub> <sup>2-</sup> (w NaOH)	NaOH
	FGD Purge Eff	2/18	0030	Travis Thorata			1	1	1	1	1		1	1	1	2	2	
	BioReactor 1 Inf	2/18	0030	Tom Thate				1	1	1	1	1	1	1	1			
	BioReactor 1 Inf Hg Blk	2/18	0030	Tom Thate							1							
	BioReactor 2 Eff	2/18	0030	Tom Thate			1	1	1**	1	1	1	1	1	1			
	BioReactor 2 Eff Hg Blk	2/18	0030	Tom Thate							1							
	Filter Blk	2/18	0030	Tom Thate						1								
	Metals Trip Blk								1		1							

Customer to sign & date below - fill out from left to right.

1) Relinquished By <b>Travis Thorata</b>	Date/Time <b>2/18/12</b>	2) Accepted By <b>[Signature]</b>	Date/Time <b>2-20-12 13:35</b>
3) Relinquished By <b>[Signature]</b>	Date/Time <b>2-21-12 1300</b>	4) Accepted By <b>[Signature]</b>	Date/Time
5) Relinquished By <b>Cindy Knox</b>	Date/Time <b>2-21-12 1415</b>	6) Accepted By <b>[Signature]</b>	Date/Time <b>2-21-12 1415</b>
7) Relinquished By	Date/Time	8) Accepted By	Date/Time
9) Seal/Locked By <b>[Signature]</b>	Date/Time <b>2-21-12</b>	10) Seal/Lock Opened By	Date/Time
11) Seal/Locked By	Date/Time	12) Seal/Lock Opened By	Date/Time

Comments: \* Metals=TRM/IMS = As, Cd, Cr, Cu, Ni, Se, Ag, Zn TRM/ICP = B, Ca, FE, K, Li, Mg, Mn, Na, 1\*\* Mn only

Customer, IMPORTANT!  
Please indicate desired turnaround.

**22 Requested Turnaround**

14 Days \_\_\_\_\_  
\*7 Days \_\_\_\_\_  
\*48 Hr \_\_\_\_\_

\*Other \_\_\_\_\_  
Add. Cost Will Apply

**2-28-12**